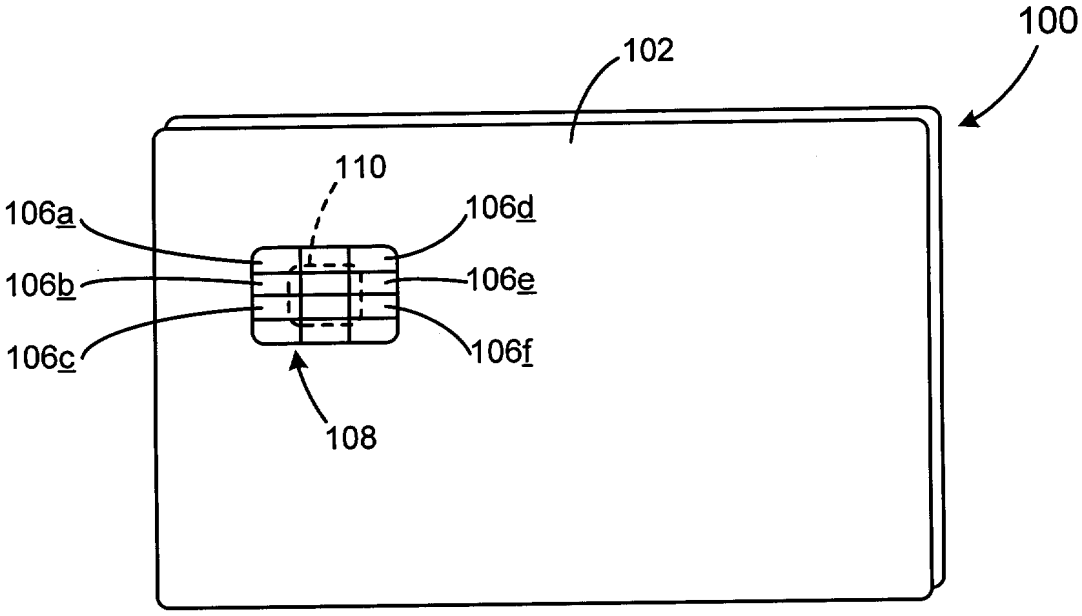
100
102
110
106a
106b
106c
106d
106e
106f
108

FIG. 1

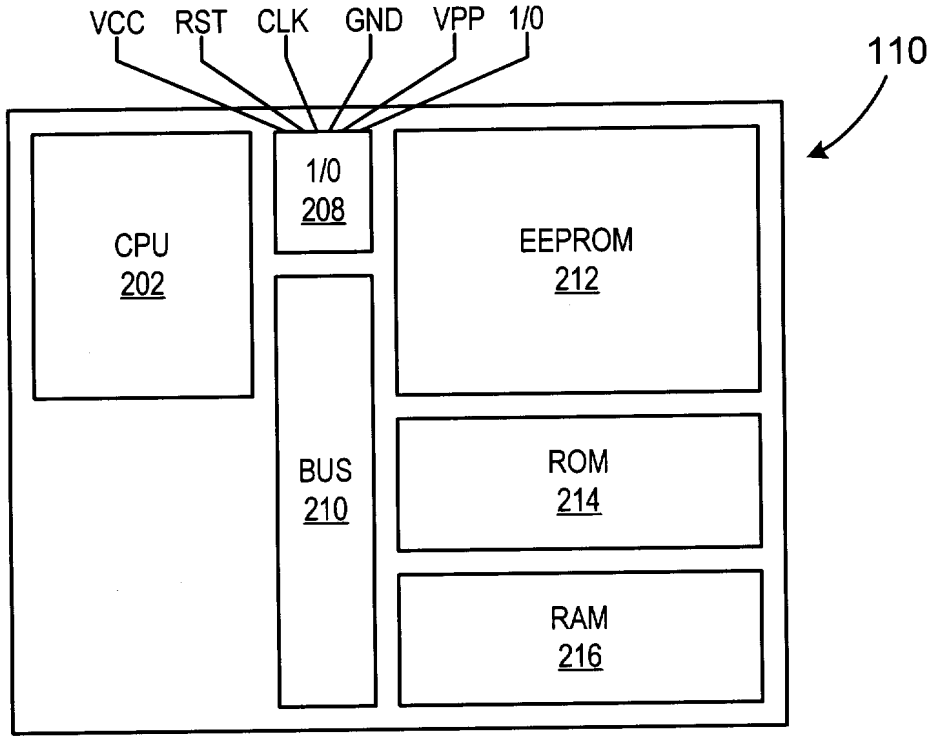
VCC
RST
CLK
GND
VPP
1/0
110
CPU
202
1/0
208
EEPROM
212
BUS
210
ROM
214
RAM
216

FIG. 2

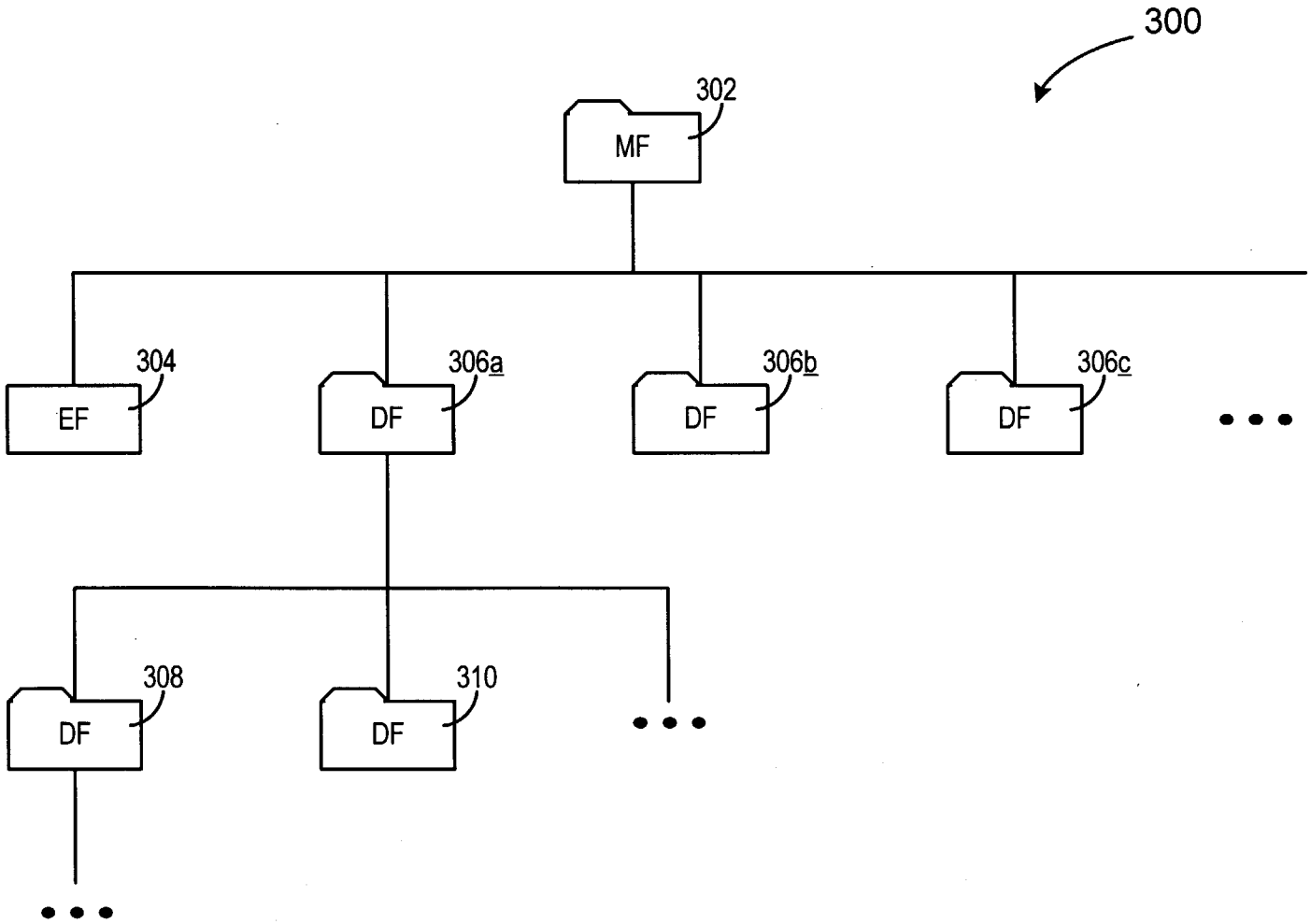


FIG. 3

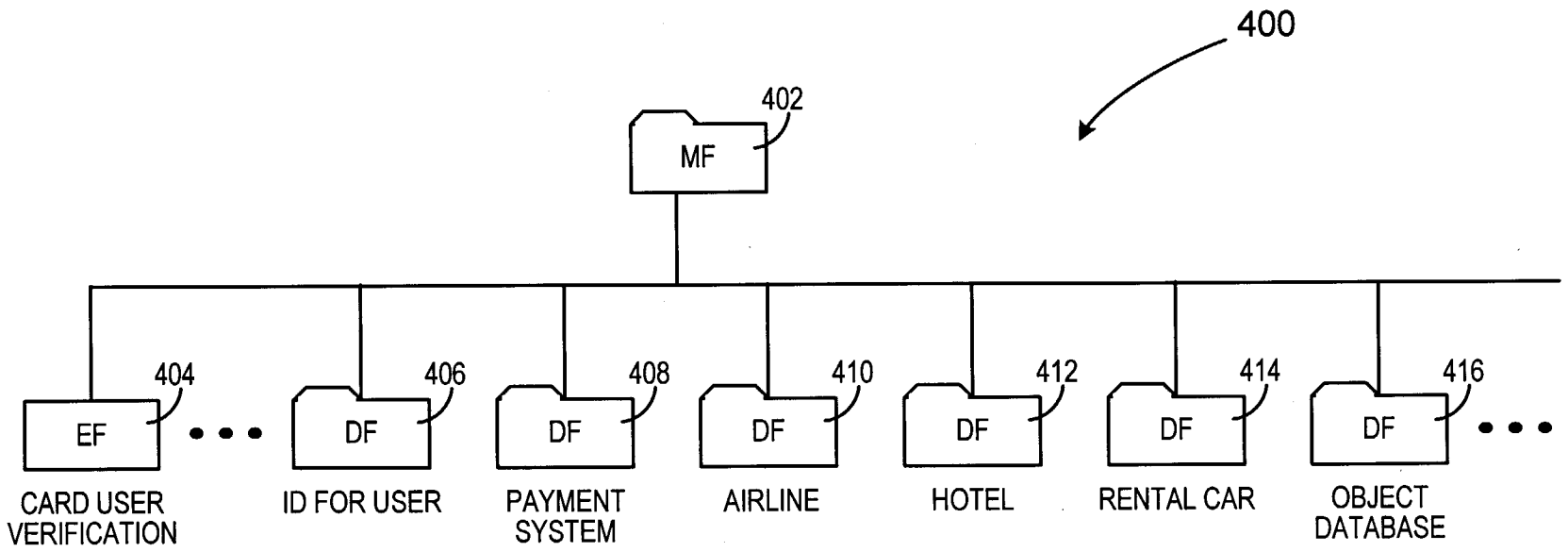
400
402
MF
404
EF
406
DF
408
DF
410
DF
412
DF
414
DF
416
DF
CARD USER VERIFICATION
ID FOR USER
PAYMENT SYSTEM
AIRLINE
HOTEL
RENTAL CAR
OBJECT DATABASE

FIG. 4

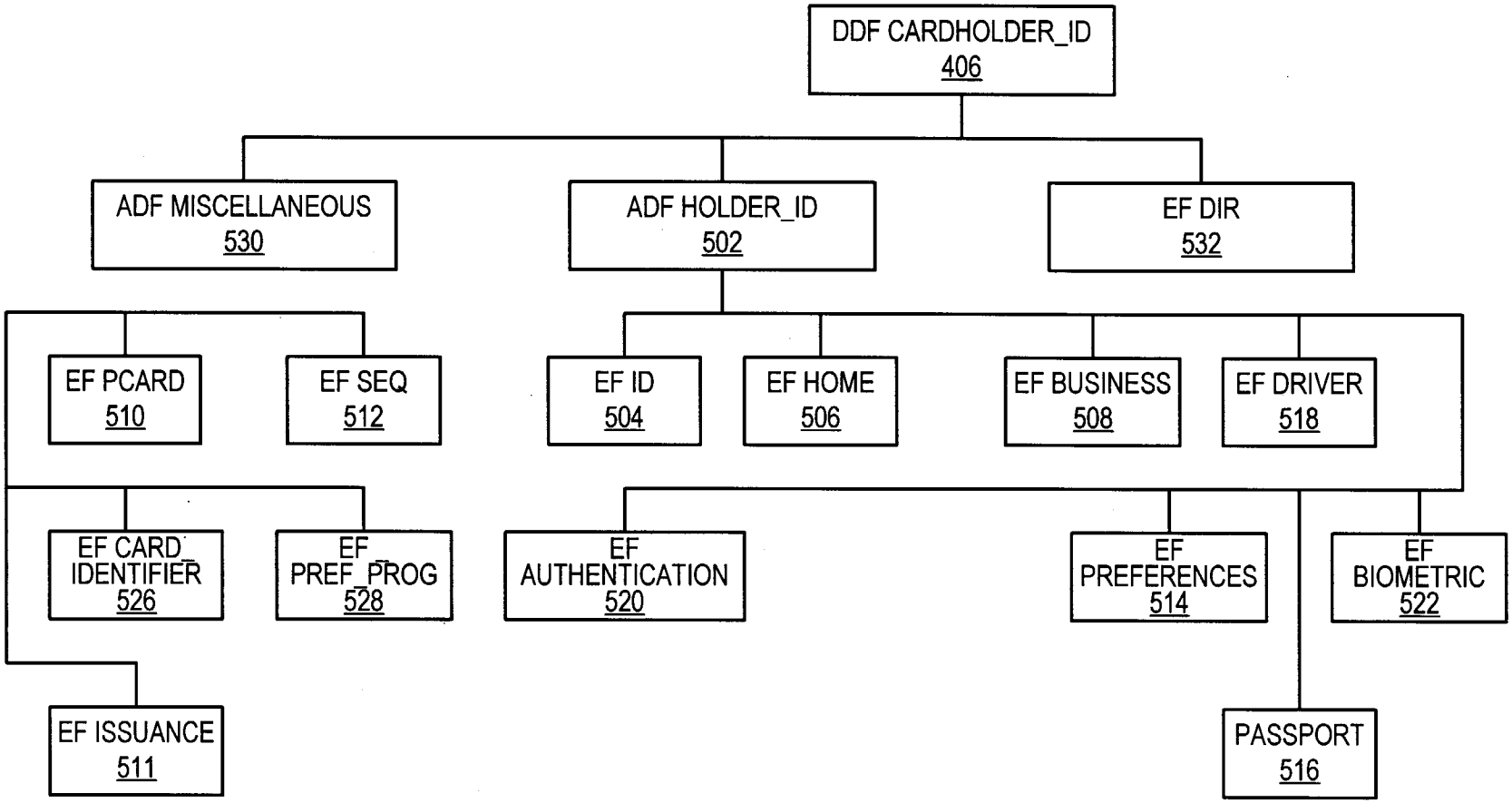
DDF CARDHOLDER_ID
406
ADF MISCELLANEOUS
530
ADF HOLDER_ID
502
EF DIR
532
EF PCARD
510
EF SEQ
512
EF ID
504
EF HOME
506
EF BUSINESS
508
EF DRIVER
518
EF CARD_ IDENTIFIER
526
EF PREF_PROG
528
EF AUTHENTICATION
520
EF PREFERENCES
514
EF BIOMETRIC
522
EF ISSUANCE
511
PASSPORT
516

FIG. 5

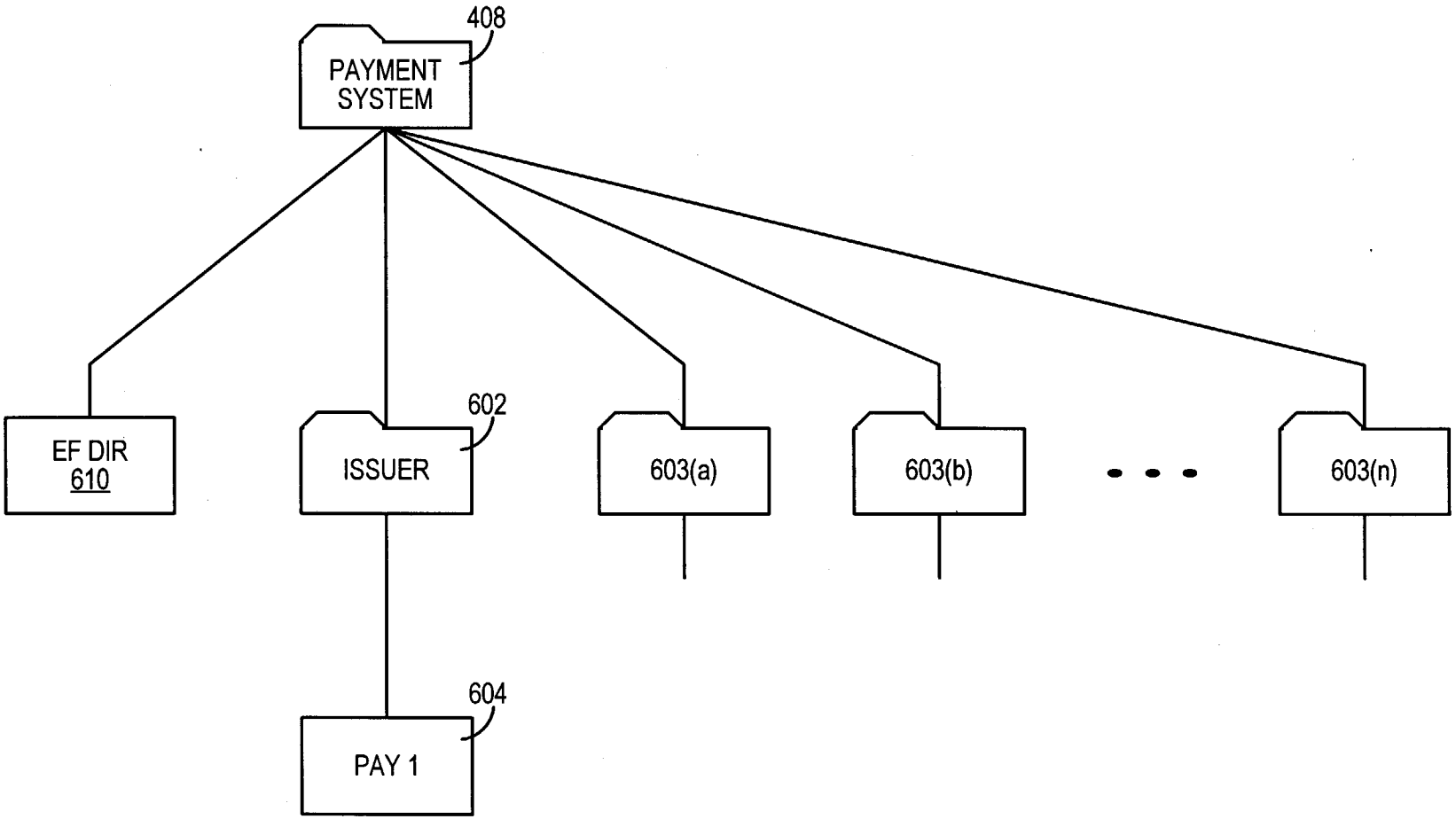
408
PAYMENT SYSTEM
EF DIR 610
602
ISSUER
603(a)
603(b)
603(n)
604
PAY 1

FIG. 6

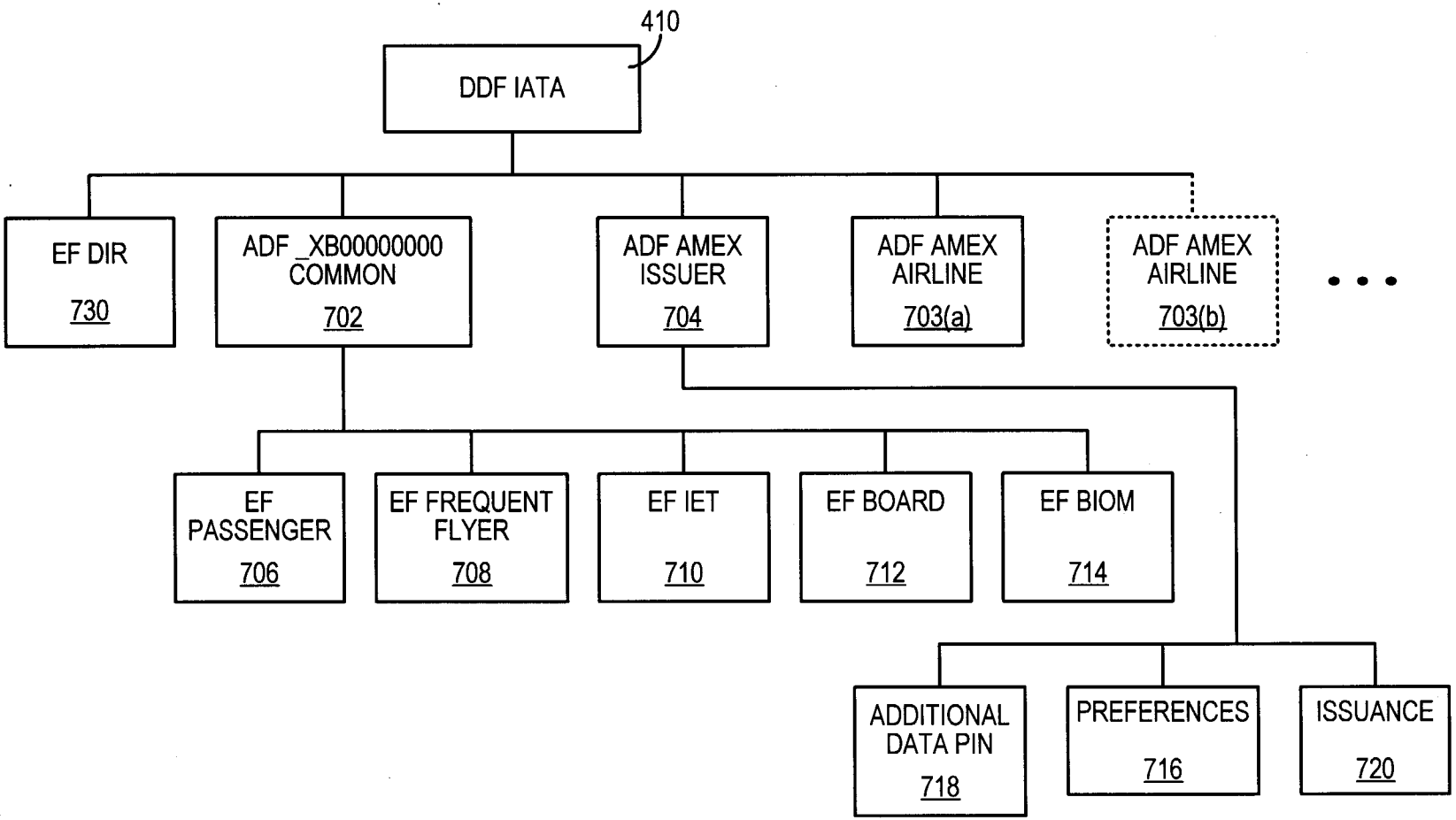
410
DDF IATA
EF DIR
730
ADF _XB00000000
COMMON
702
ADF AMEX
ISSUER
704
ADF AMEX
AIRLINE
703(a)
ADF AMEX
AIRLINE
703(b)
EF
PASSENGER
706
EF FREQUENT
FLYER
708
EF IET
710
EF BOARD
712
EF BIOM
714
ADDITIONAL
DATA PIN
718
PREFERENCES
716
ISSUANCE
720

FIG. 7

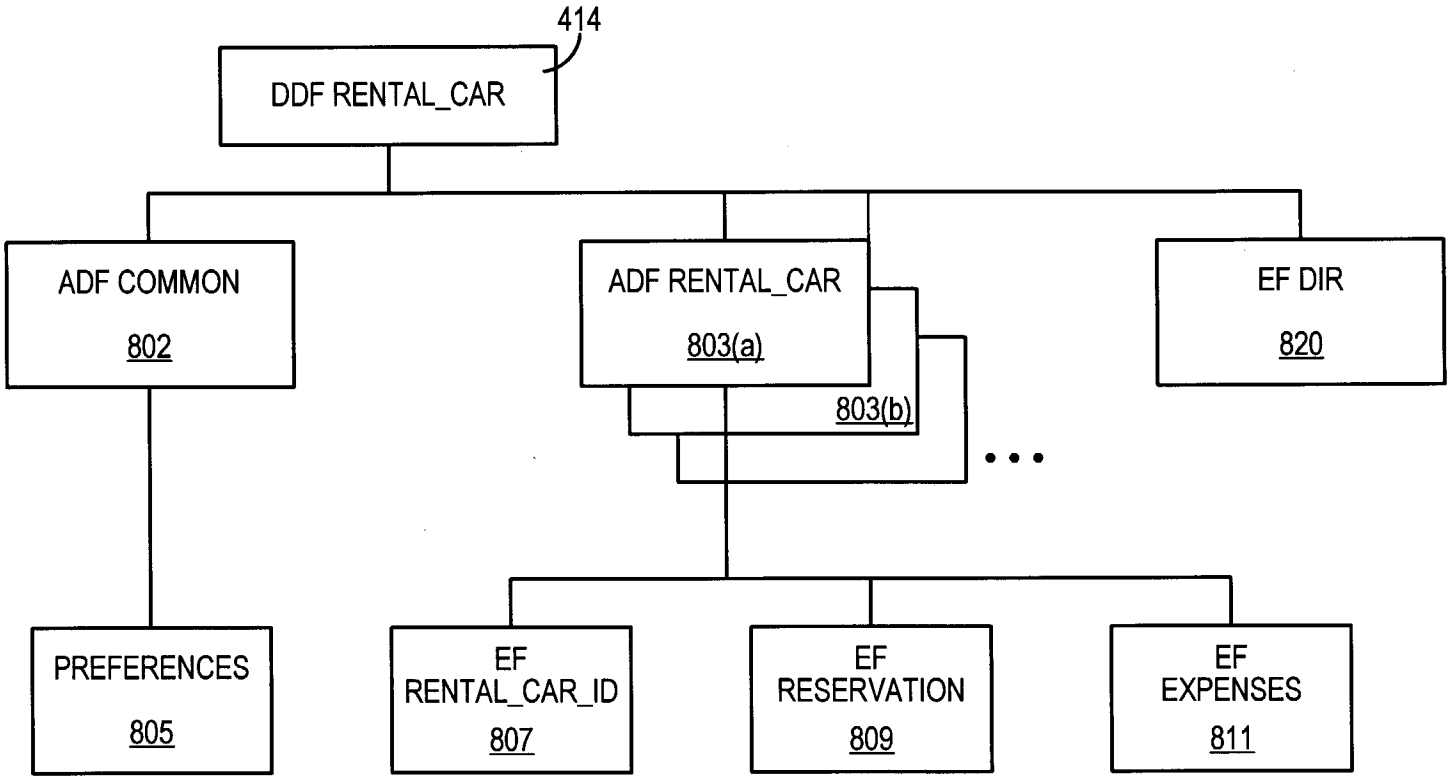
414
DDF RENTAL_CAR
ADF COMMON
802
ADF RENTAL_CAR
803(a)
803(b)
EF DIR
820
PREFERENCES
805
EF
RENTAL_CAR_ID
807
EF
RESERVATION
809
EF
EXPENSES
811

FIG. 8

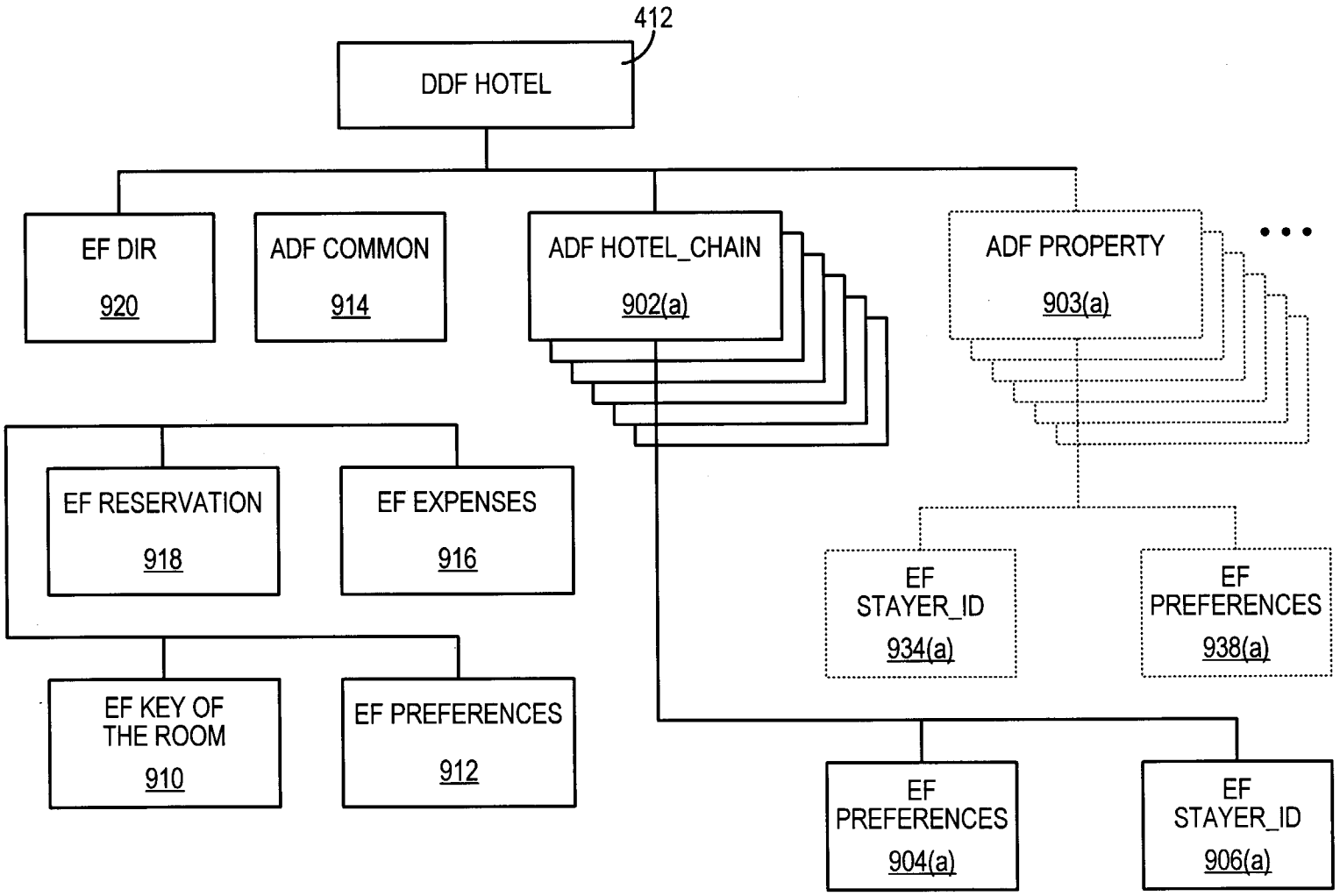
412
DDF HOTEL
EF DIR
920
ADF COMMON
914
ADF HOTEL_CHAIN
902(a)
ADF PROPERTY
903(a)
EF RESERVATION
918
EF EXPENSES
916
EF KEY OF THE ROOM
910
EF PREFERENCES
912
EF STAYER_ID
934(a)
EF PREFERENCES
938(a)
EF PREFERENCES
904(a)
EF STAYER_ID
906(a)

FIG. 9

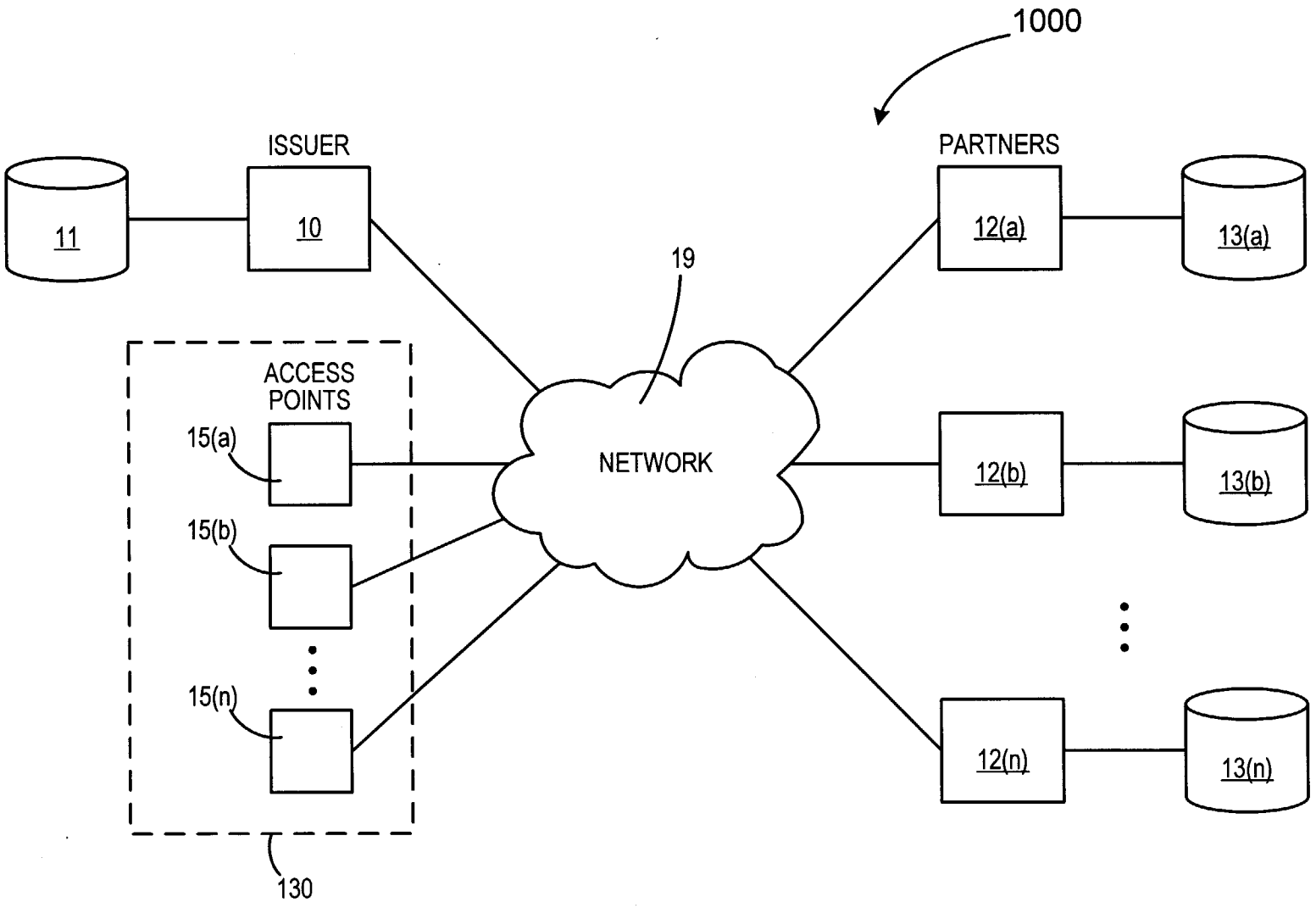
1000
ISSUER
PARTNERS
11
10
12(a)
13(a)
19
ACCESS
POINTS
15(a)
NETWORK
12(b)
13(b)
15(b)
15(n)
12(n)
13(n)
130

FIG. 10

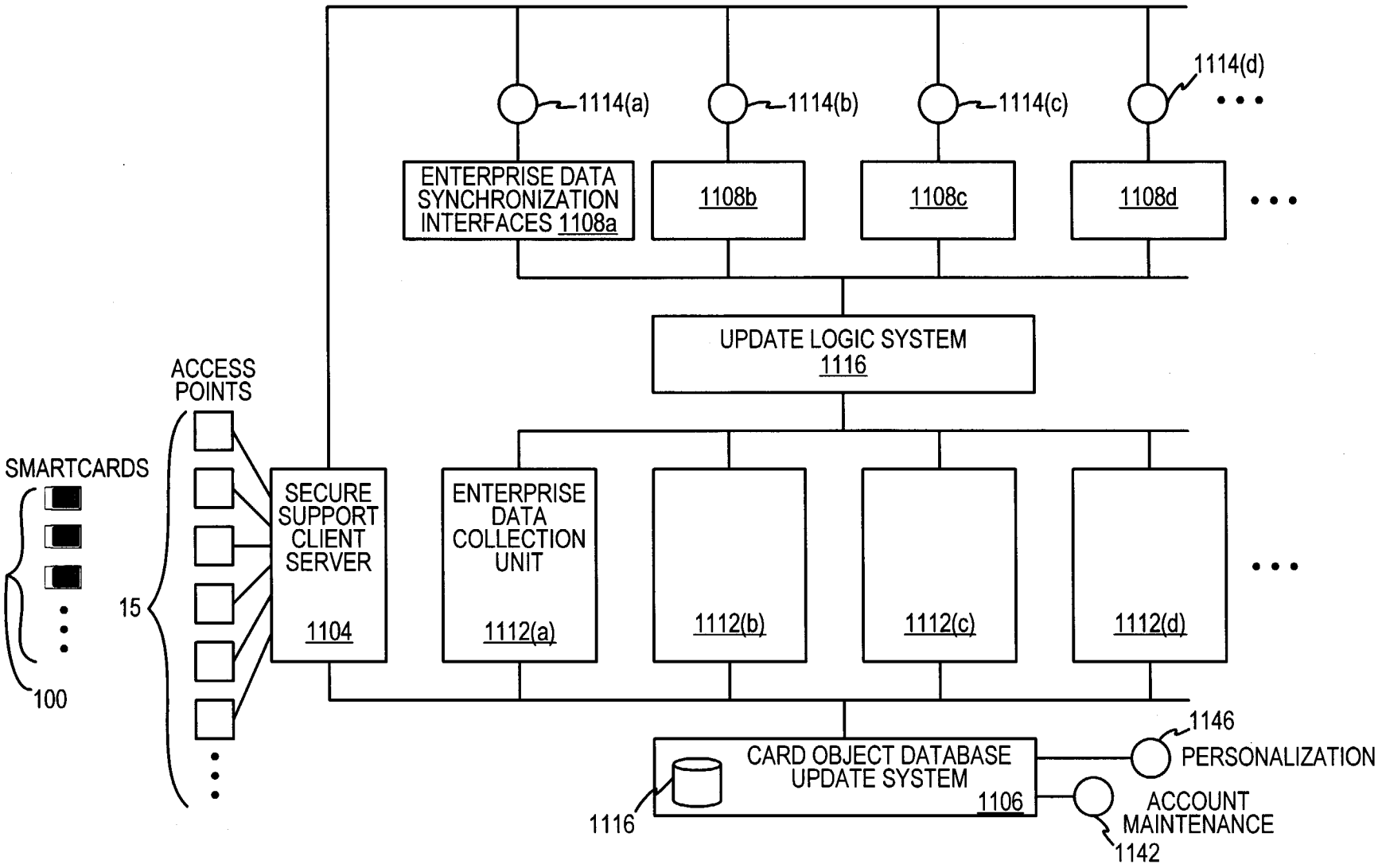
1114(a)
1114(b)
1114(c)
1114(d)
ENTERPRISE DATA SYNCHRONIZATION INTERFACES 1108a
1108b
1108c
1108d
UPDATE LOGIC SYSTEM 1116
ACCESS POINTS
SMARTCARDS
15
100
SECURE SUPPORT CLIENT SERVER 1104
ENTERPRISE DATA COLLECTION UNIT 1112(a)
1112(b)
1112(c)
1112(d)
1146
PERSONALIZATION
CARD OBJECT DATABASE UPDATE SYSTEM 1106
1116
ACCOUNT MAINTENANCE
1142

FIG. 11

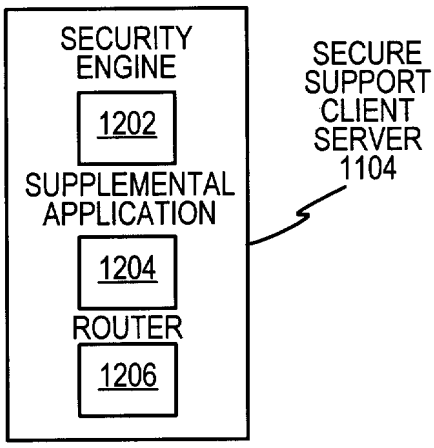


FIG. 12

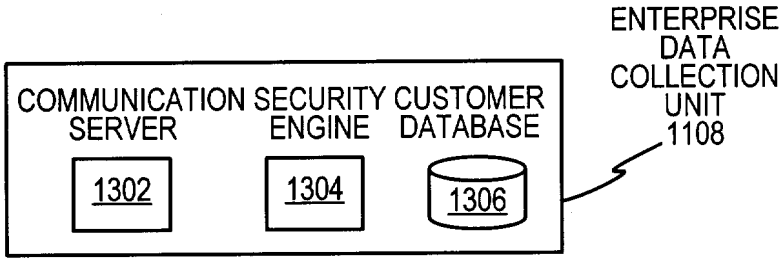


FIG. 13

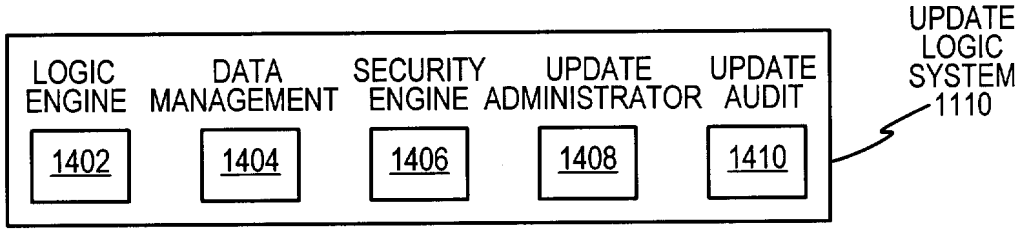


FIG. 14

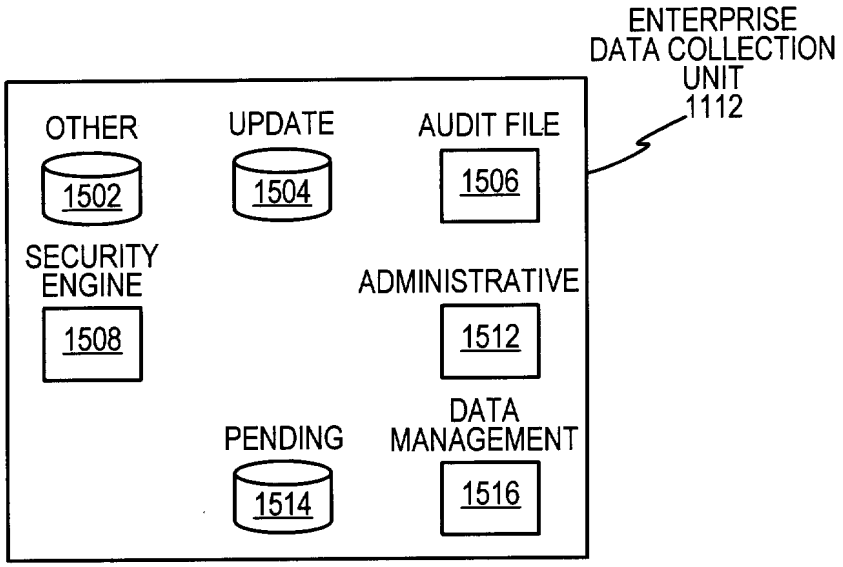
ENTERPRISE
DATA COLLECTION
UNIT
1112
OTHER
1502
UPDATE
1504
AUDIT FILE
1506
SECURITY
ENGINE
1508
ADMINISTRATIVE
1512
PENDING
1514
DATA
MANAGEMENT
1516

FIG. 15

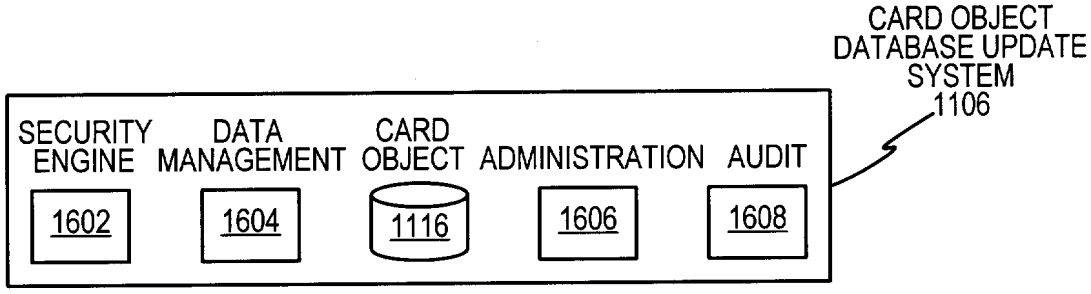
CARD OBJECT
DATABASE UPDATE
SYSTEM
1106
SECURITY
ENGINE
1602
DATA
MANAGEMENT
1604
CARD
OBJECT
1116
ADMINISTRATION
1606
AUDIT
1608

FIG. 16

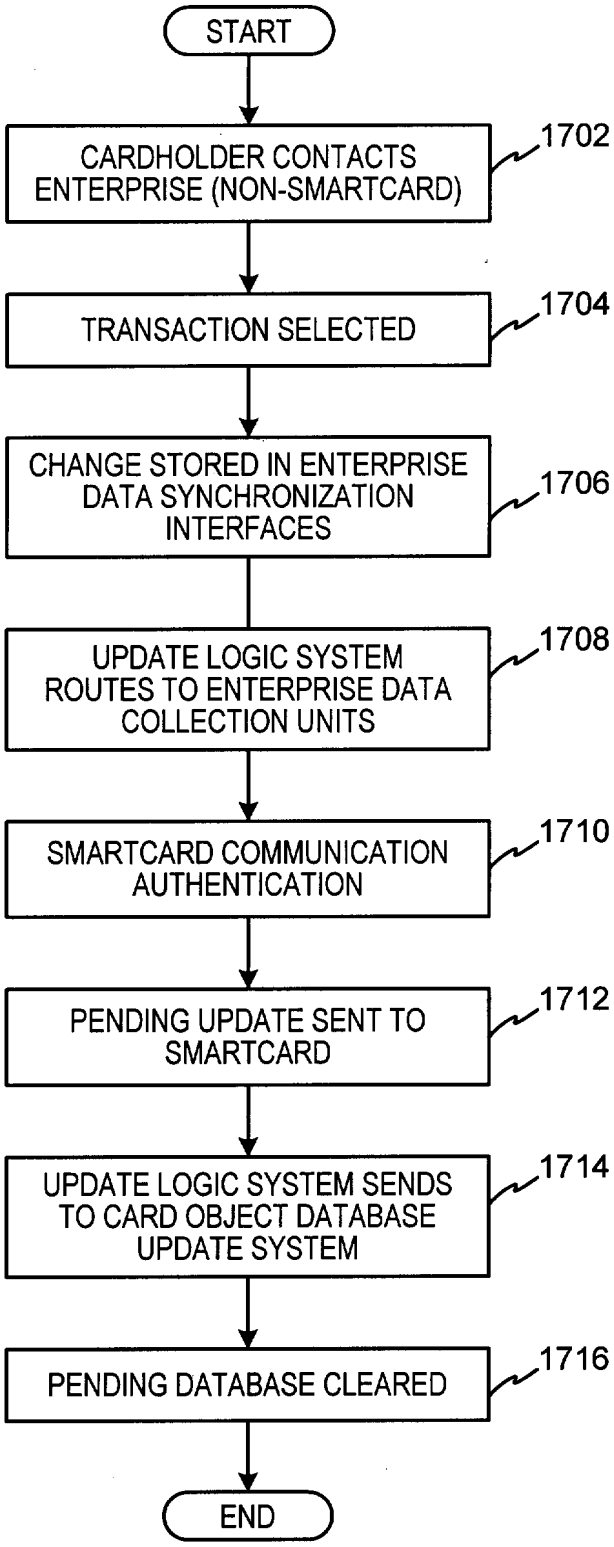
START
CARDHOLDER CONTACTS ENTERPRISE (NON-SMARTCARD)
1702
TRANSACTION SELECTED
1704
CHANGE STORED IN ENTERPRISE DATA SYNCHRONIZATION INTERFACES
1706
UPDATE LOGIC SYSTEM ROUTES TO ENTERPRISE DATA COLLECTION UNITS
1708
SMARTCARD COMMUNICATION AUTHENTICATION
1710
PENDING UPDATE SENT TO SMARTCARD
1712
UPDATE LOGIC SYSTEM SENDS TO CARD OBJECT DATABASE UPDATE SYSTEM
1714
PENDING DATABASE CLEARED
1716
END

FIG. 17

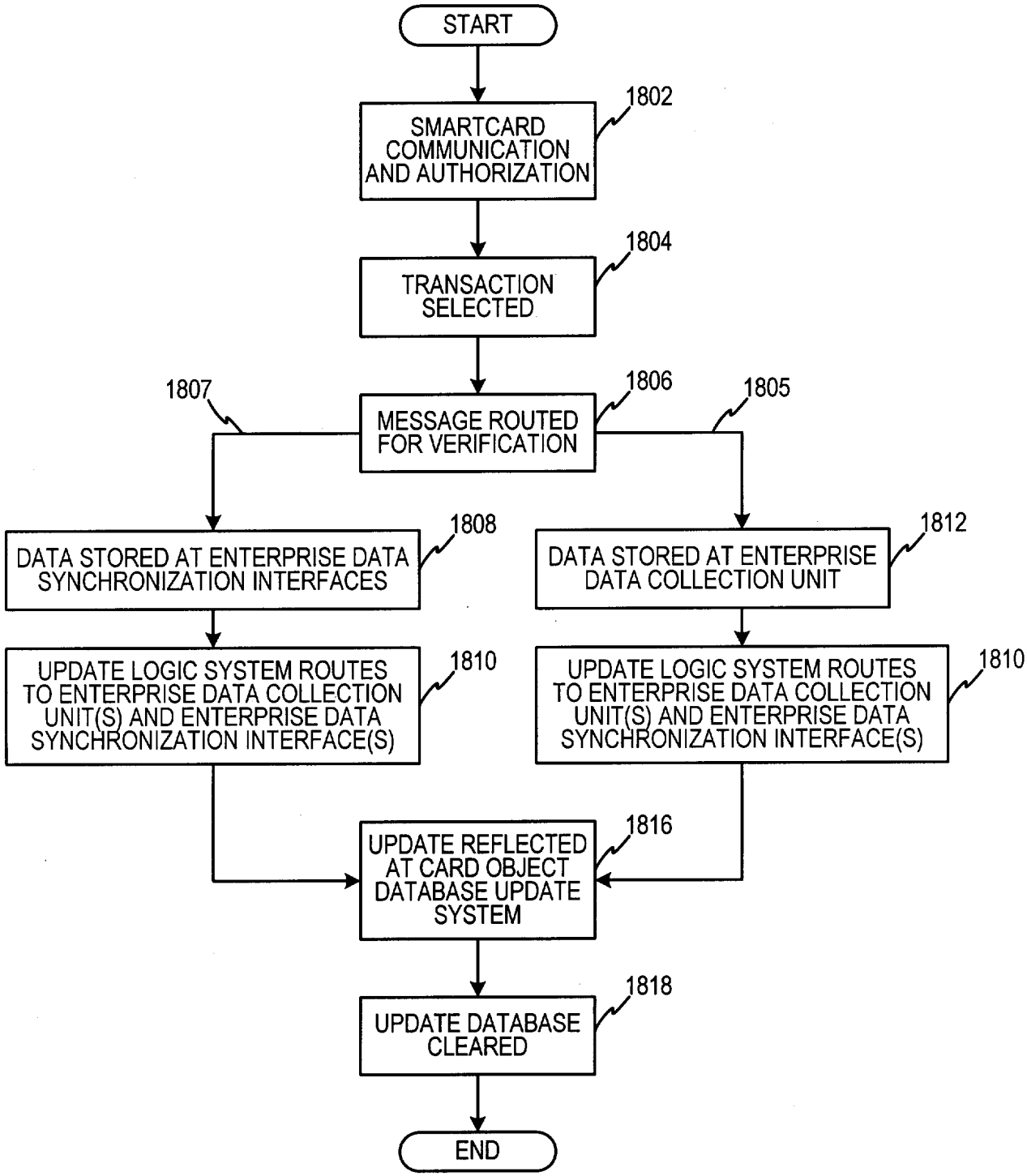
START
SMARTCARD COMMUNICATION AND AUTHORIZATION
1802
TRANSACTION SELECTED
1804
MESSAGE ROUTED FOR VERIFICATION
1806
1807
1805
DATA STORED AT ENTERPRISE DATA SYNCHRONIZATION INTERFACES
1808
DATA STORED AT ENTERPRISE DATA COLLECTION UNIT
1812
UPDATE LOGIC SYSTEM ROUTES TO ENTERPRISE DATA COLLECTION UNIT(S) AND ENTERPRISE DATA SYNCHRONIZATION INTERFACE(S)
1810
UPDATE LOGIC SYSTEM ROUTES TO ENTERPRISE DATA COLLECTION UNIT(S) AND ENTERPRISE DATA SYNCHRONIZATION INTERFACE(S)
1810
UPDATE REFLECTED AT CARD OBJECT DATABASE UPDATE SYSTEM
1816
UPDATE DATABASE CLEARED
1818
END

FIG. 18

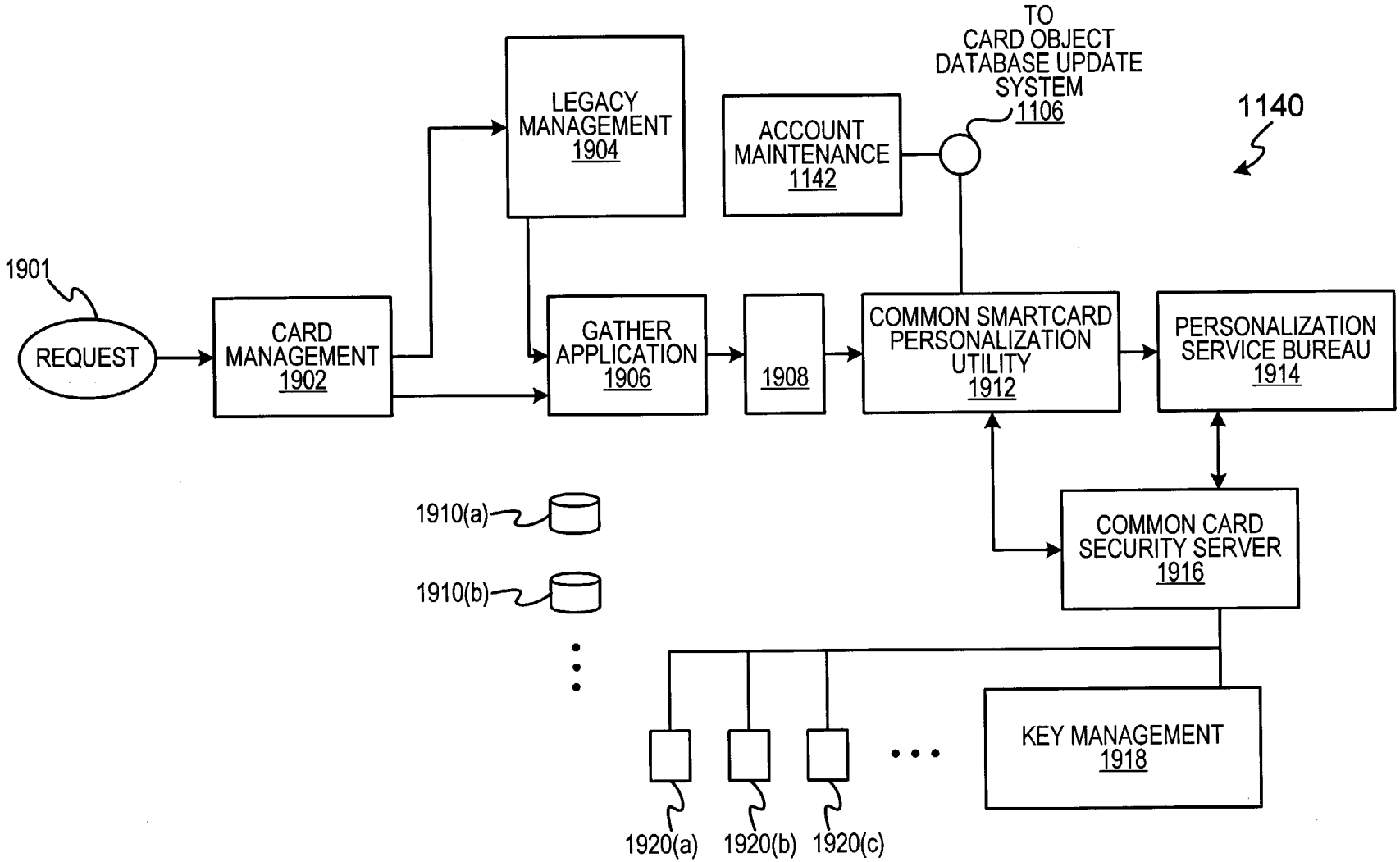
TO
CARD OBJECT
DATABASE UPDATE
SYSTEM
1106
1140
LEGACY
MANAGEMENT
1904
ACCOUNT
MAINTENANCE
1142
1901
REQUEST
CARD
MANAGEMENT
1902
GATHER
APPLICATION
1906
1908
COMMON SMARTCARD
PERSONALIZATION
UTILITY
1912
PERSONALIZATION
SERVICE BUREAU
1914
1910(a)
1910(b)
COMMON CARD
SECURITY SERVER
1916
KEY MANAGEMENT
1918
1920(a)
1920(b)
1920(c)

FIG. 19

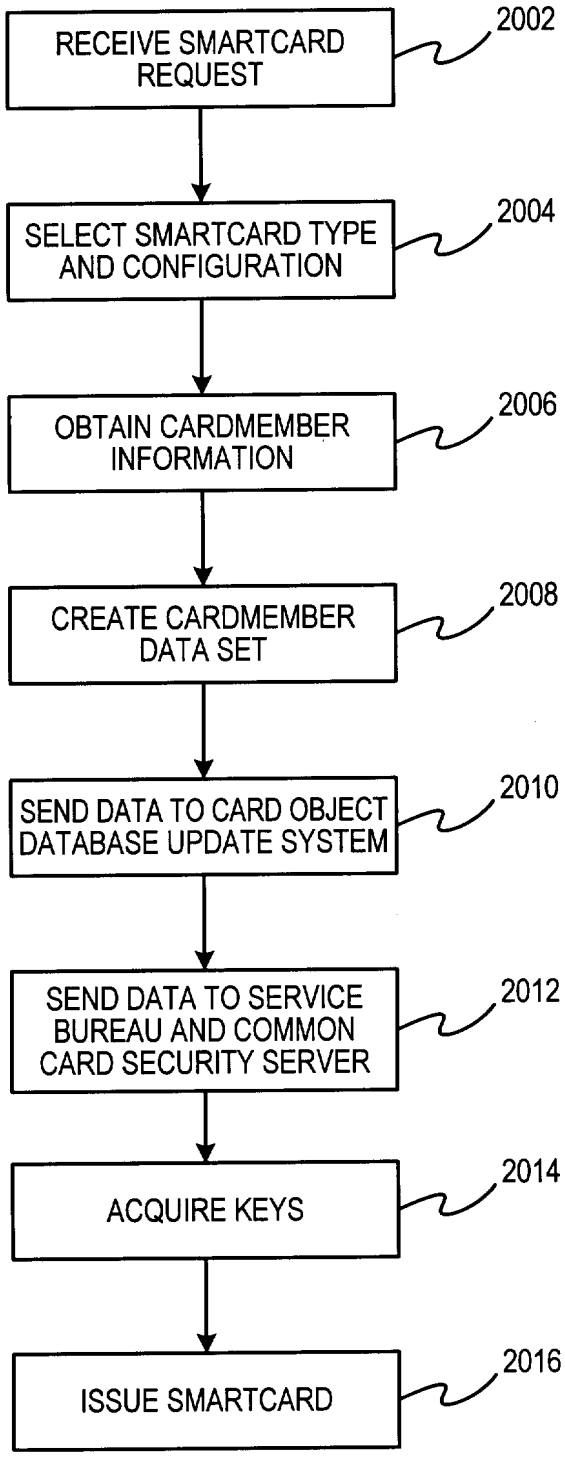
RECEIVE SMARTCARD REQUEST
2002
SELECT SMARTCARD TYPE AND CONFIGURATION
2004
OBTAIN CARDMEMBER INFORMATION
2006
CREATE CARDMEMBER DATA SET
2008
SEND DATA TO CARD OBJECT DATABASE UPDATE SYSTEM
2010
SEND DATA TO SERVICE BUREAU AND COMMON CARD SECURITY SERVER
2012
ACQUIRE KEYS
2014
ISSUE SMARTCARD
2016

FIG. 20

2102 2104 2106 2108

| Field Name | Type | Max Length | Description |
|---|---|---|---|
| TPLOYLATY | 'C' | varies | Travel Partner-specific loyalty number (Frequent Flyer, Stayer, Renter, etc.) |
| PIN | 'C' | varies | Travel Partner-specific PIN associated with above loyalty number (Frequent Flyer, Stayer, Renter, etc.) |
| LASTNAME | 'C' | 30 | Last Name |
| FIRSTNAME | 'C' | 20 | First Name |
| MIDNAME | 'C' | 8 | Middle Name (or initial) |
| HONTITLE | 'C' | 8 | Honorary Title (Mr, Mrs, Ms, Dr, etc.) |
| NAMESUFIX | 'C' | 4 | Name Suffix (Jr, Sr, etc.) |
| COMPNAME | 'C' | 30 | Company Name |
| HOMEADDRE1 | 'C' | 40 | Home Addres Line 1 |
| HOMEADDRE2 | 'C' | 40 | Home Addres Line 2 |
| HOMEADDRE3 | 'C' | 40 | Home Addres Line 3 |
| HOMECITY | 'C' | 25 | Home City |
| HOMESTATE | 'C' | 5 | Home State |
| HOMECOUNTR | 'C' | 2 | Home Country |
| HOMEZIP | 'C' | 10 | Home ZIP CODE (12345-1234) |
| HOMEPHONE | 'C' | 20 | Home Phone (No Punctuation; Numbers only; 7129991023) |
| HOMEFAX | C' | 20 | Home Fax; (No Punctuation; Numbers only; 7129991023) |
| HOMEEMAIL | 'C' | 40 | Home Email Address |
| BUSADDRES1 | 'C' | 40 | Business Addres Line 1 |
| BUSADDRES2 | 'C' | 40 | Business Addres Line 2 |
| BUSADDRES3 | 'C' | 40 | Business Addres Line 3 |
| BUSCITY | 'C' | 25 | Business City |
| BUSSTATE | 'C' | 5 | Business State |
| BUSCOUNTRY | 'C' | 2 | Business Country |
| BUSZIP | 'C' | 10 | Business ZIP code (12345-1234) |

FIG. 21

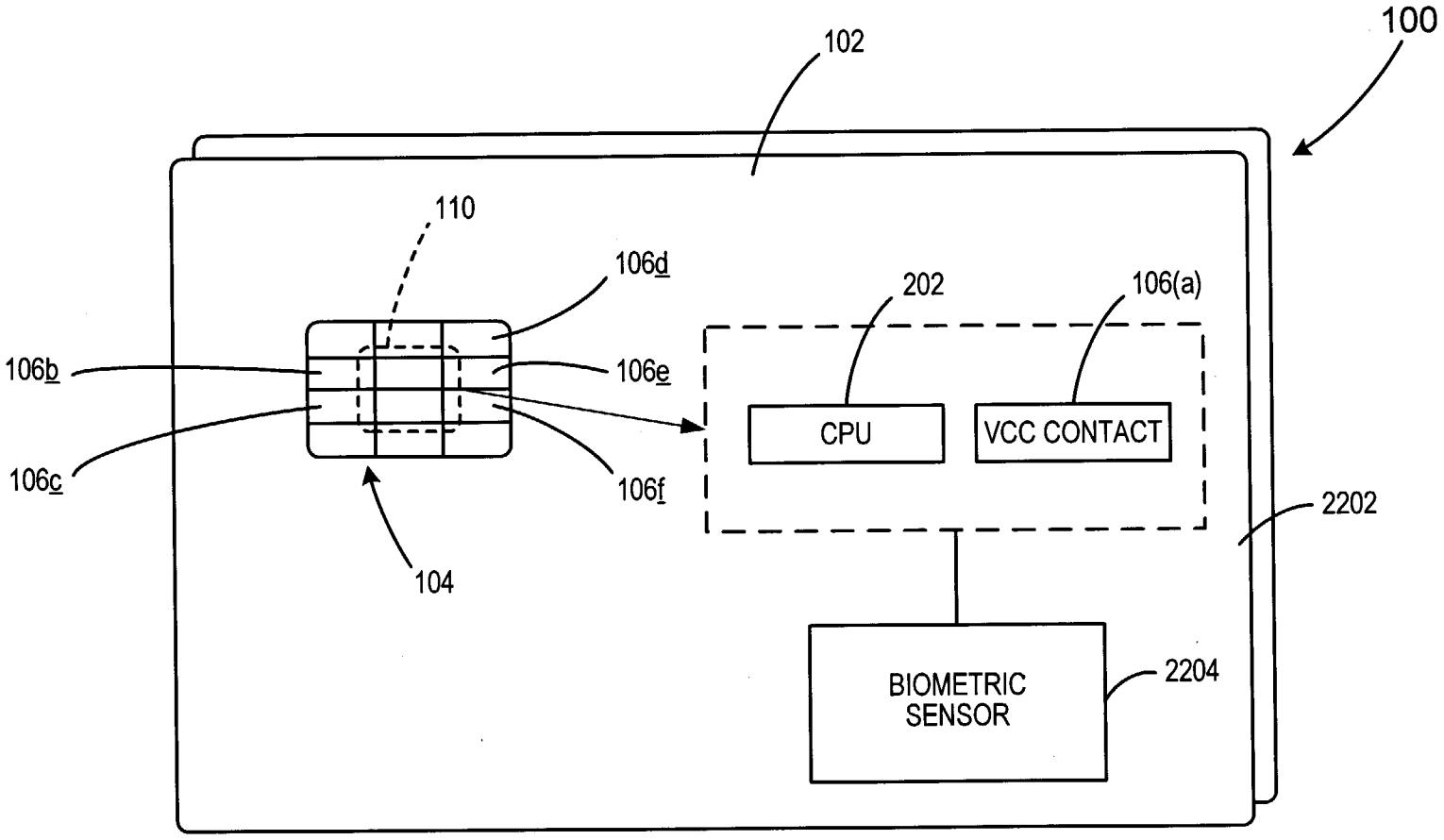
100
102
110
106d
106b
106e
106c
106f
104
202
106(a)
CPU
VCC CONTACT
2202
BIOMETRIC SENSOR
2204

FIG. 22

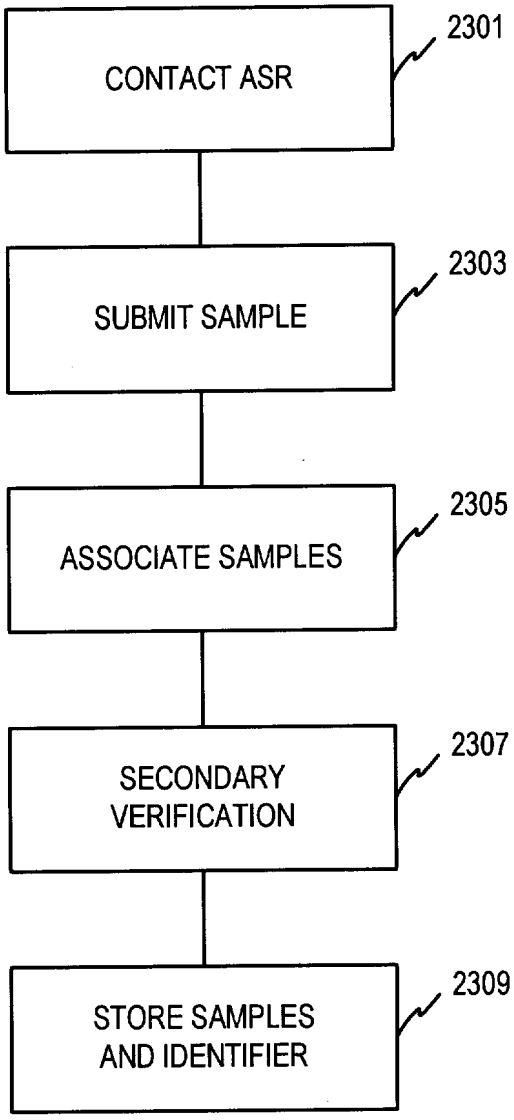
CONTACT ASR
2301
SUBMIT SAMPLE
2303
ASSOCIATE SAMPLES
2305
SECONDARY VERIFICATION
2307
STORE SAMPLES AND IDENTIFIER
2309

FIG. 23

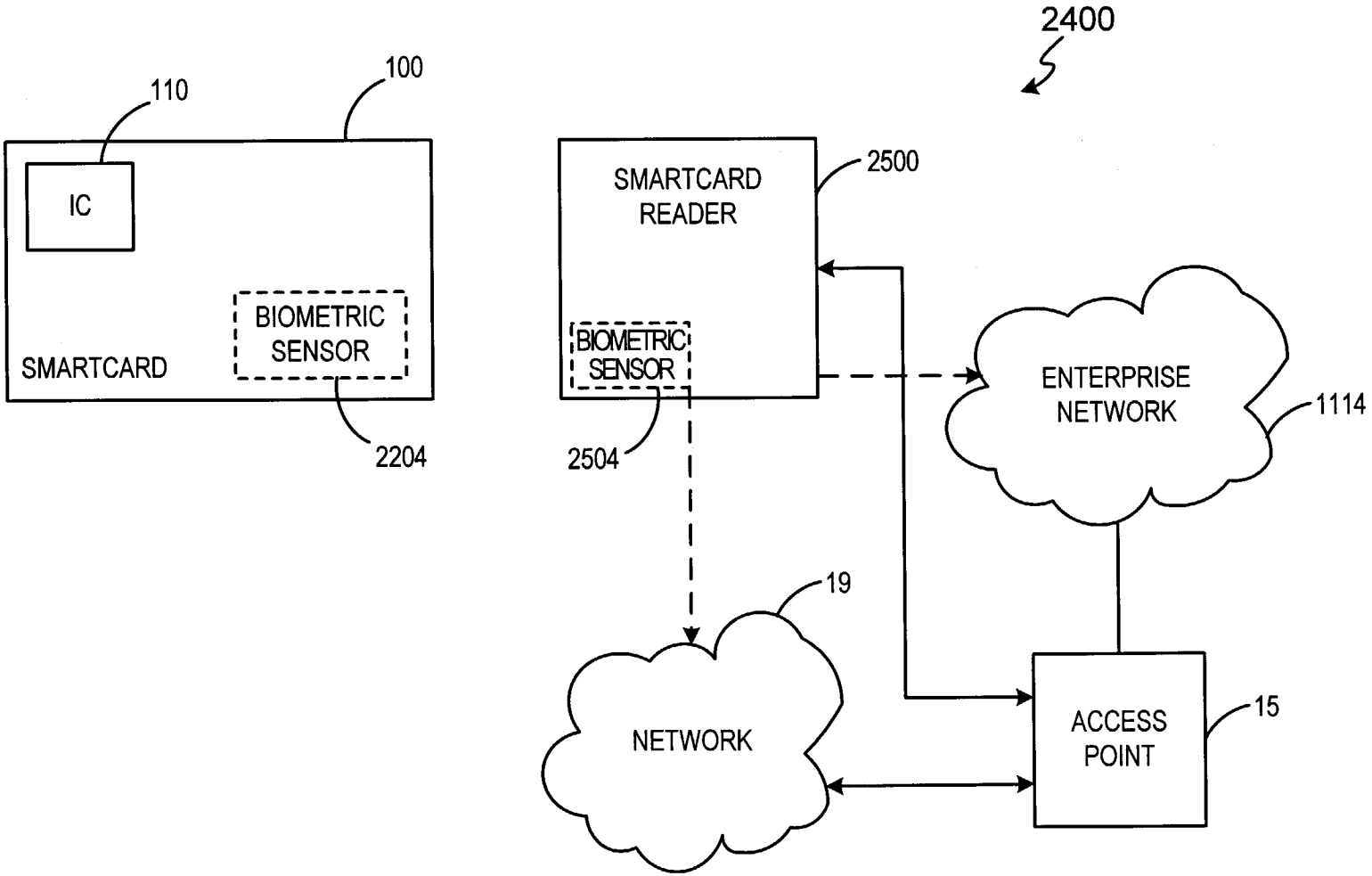
2400
100
110
IC
SMARTCARD
BIOMETRIC SENSOR
2204
SMARTCARD READER
2500
BIOMETRIC SENSOR
2504
ENTERPRISE NETWORK
1114
19
NETWORK
ACCESS POINT
15

FIG. 24

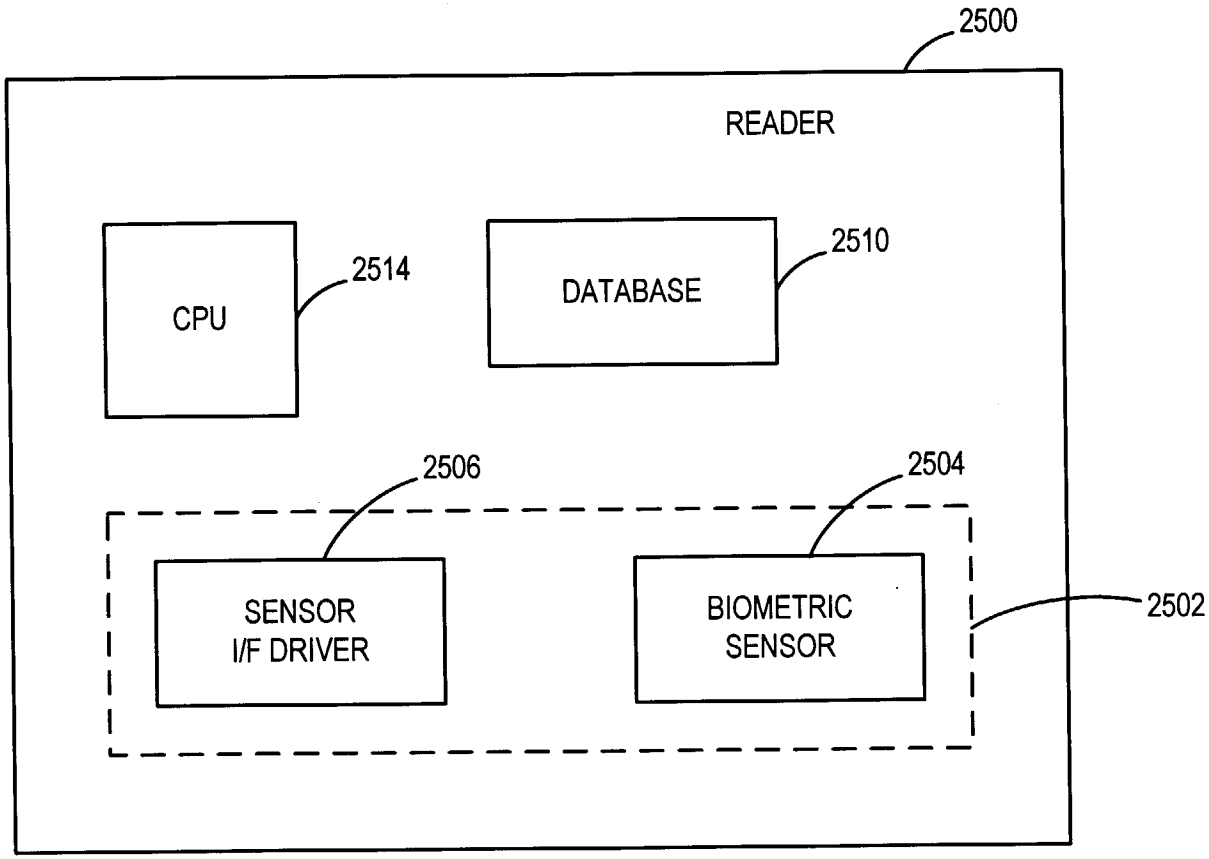
2500
READER
CPU
2514
DATABASE
2510
2506
2504
SENSOR
I/F DRIVER
BIOMETRIC
SENSOR
2502

FIG. 25

*** Track 2 Layout: *** | SS | PAN | FS | Additional Data | ES | LRC |

**FIG. 26**

***MasterCard Track Layout in Track 2***

| SS | PAN | FS | ADDITIONAL DATA | ES | LRC |
|---|---|---|---|---|---|

;5111222233334444=99121010000000000?

**FIG. 27**